

(*c, d*, Fig. 10) change to a luminous one (*e, f*), because the background is now only capable of faintly phosphorescing, whilst the part which had the black shadow on it retains its full phosphorescent power. The stencilled image of the luminous cross unfortunately soon dies out. After a period of rest the glass partly recovers its power of phosphorescing, but it is never so good as it was at first.

Here, therefore, is another important property of radiant matter. It is projected with great velocity from the negative pole, and not only strikes the glass in such a way as to cause it to vibrate and become temporarily luminous while the discharge is going on, but the molecules hammer away with sufficient energy to produce a permanent impression upon the glass.

(To be continued.)

NOTES

IN accordance with the resolution come to at the recent International Congress of Meteorology, the International Committee have issued circulars for a special Conference at the Deutsche Seewarte at Hamburg, on October 1, to consider the scheme of Count Wilczek and Lieut. Weyprecht for the establishment of circumpolar observing stations. The Conference will consider specially the following points:—1. The number of observatories and the most convenient places at which to establish them. The decision will depend on the number of co-operating states and the sums which they are willing to devote to this purpose. Count Wilczek and Lieut. Weyprecht have proposed the following places:—In the Northern Hemisphere: north coasts of Spitzbergen and of Novaya Zemlya, the neighbourhood of the North Cape, the mouth of the Lena, New Siberia, Point Barrow, on the north-east of Behring Strait, west coast of Greenland, east coast of Greenland, about 75° N. lat. In the Southern Hemisphere: the neighbourhood of Cape Horn, Kerguelen or Macdonald Islands, one of the groups south of the Auckland Islands. 2. There will be considered the exact epoch of the observations and their maximum duration. 3. Uniform instruction for observations, which will have to fix especially: (*a*) The minimum of elements to be observed at each station, both for meteorological phenomena and for those of terrestrial magnetism, as well as for other phenomena of terrestrial physics connected with them. (*b*) The minimum number of daily observations for the different elements. (*c*) The first meridian which will serve as basis for simultaneous observations. (*d*) Methods of observation for the different elements and methods of reduction. (*e*) Instruments of observation and their arrangement, as far as they may influence the comparability of the results.

AT a recent meeting of the Committee of the Iron and Steel Institute in Liverpool it was arranged that this year's meeting should be held in Liverpool on September 24, 25, and 26. The use of St. George's Hall has been granted by the Corporation, and numerous places for inspection and excursion have been partly arranged for, including Messrs. Blundell's collieries, near Wigan, and the Tubular Bridge at Menai Straits. In addition to papers on the manufacture and application of steel and iron, papers on subjects of work more immediately connected with Liverpool have been promised.

M. Janssen, we are glad to see, has been appointed to represent the Paris Academy of Sciences, at the inauguration of the statue to Arago, at Perpignan.

THE prizes instituted by Prof. Schöffli (Lausanne) for scientific works on Switzerland will now be awarded not only to Swiss naturalists, as hitherto, but also to foreign, a resolution in this sense having been accepted at the last meeting of Swiss naturalists.

WE regret to hear of the death of Mr. Edward Edwards, late of Menai Bridge, Anglesey, at the age of seventy-five. For upwards of twenty years he had studied the habits and characters

of marine animals in their native haunts, and his contrivance of the "dark chamber tank" was the first by which these animal, could be kept alive and healthy for an indefinite period in confinement, and the principle of which was afterwards carefully recognised in the construction of the Crystal Palace and other aquariums.

THE *Times* Geneva correspondent writes, under date August 22:—"On the evening of August 5, six persons who were standing in the gallery of a *châlet* in the Jura, above St. Cergues, witnessed an atmospheric phenomenon equally rare and curious. The aspect of the sky was dark and stormy. The air was thick with clouds, out of which darted at intervals bright flashes of lightning. At length one of these clouds, seeming to break loose from the mountains between Nyon and the Dôle, advanced in the direction of a storm which had, meanwhile, broken out over Morges. The sun was hidden and the country covered with thick darkness. At this moment the pine forest round St. Cergues was suddenly illuminated and shone with a light bearing a striking resemblance to the phosphorescence of the sea as seen in the tropics. The light disappeared with every clap of thunder, but only to re-appear with increased intensity until the subsidence of the tempest. M. Raoul Pictet, the eminent chemist, who was one of the witnesses of the phenomenon, thus explains it in the last number of the *Archives des Sciences Physiques et Naturelles*:—"Before the appearance of this fire of St. Elmo, which covered the whole of the forest, it had rained several minutes during the first part of the storm. The rain had converted the trees into conductors of electricity. Then, when the cloud, strongly charged with the electric fluid, passed over this multitude of points, the discharges were sufficiently vivid to give rise to the luminous appearance. The effect was produced by the action of the electricity of the atmosphere on the electricity of the earth, an effect which, on the occasion in question, was considerably increased by the height of the locality, the proximity of a storm-cloud, and the action of the rain, which turned all the trees of the forest into conductors."

A YOUNG female gorilla is now being exhibited at the Crystal Palace.

AT the last meeting of the Swiss Naturalists, Prof. Kollmann (Basel) presented a report of the Anthropological and Statistical Commission, appointed by the Swiss Natural History Society for the investigation of the distribution of the light-coloured and dark-coloured population in Switzerland. Thanks to the collaboration of many schoolmasters, no less than 250,000 children in twenty-one cantons were described as to the colour of the eyes, hair, and skin, and a very rich and reliable material was collected. It is proved that in Switzerland, as well as in all middle Europe, the light-coloured population decreases from north to south, while the dark-coloured increases, and that it reaches its greatest quantity in the Graubünden, sending a rather dense branch to the south-west. It may be concluded that a dark-coloured population immigrated in Switzerland from the south, having also a side-branch which followed the direction from the Rhone to the Rhine.

WE are glad to learn that the great undertaking of printing and publishing a catalogue of the Advocates' Library, Edinburgh, which has been in progress for many years, is now approaching completion. The Library of the Faculty of Advocates ranks next to the British Museum and the Bodleian among the libraries of the United Kingdom. It contains about 262,000 printed volumes, besides manuscripts of great interest and importance. It has had (under the Copyright Act) since the reign of Queen Anne the right of receiving a copy of every book published in the United Kingdom. Last year there were added to the Library 4,007 volumes of books, besides periodicals, pamphlets, and

music. The Catalogue consists of six volumes and supplement—containing over 200,000 entries—and extending to more than 5,500 quarto pages in double columns. Some idea of the expense of making and printing such a catalogue may be formed from the fact that individual Members of Faculty have already contributed, in donations and subscriptions, a sum of 3,700*l.* About 250*l.* are still required to print the supplement. It is expected that the work will be completed in September next, and the Advocates' Library will then be the only great library in the world possessing a complete printed catalogue. The value of this work will consist not merely in its making known the peculiar treasures of the library, but in its being the only approximately complete catalogue of all works published in the United Kingdom since the reign of Queen Anne, arranged not merely in the alphabetical order of the authors' names, but to a considerable extent also under leading subjects. Further, more information will be found in it on anonymous and pseudonymous English and Scotch literature than in any other catalogue; and a more extensive analysis of historical and other collections than can be had anywhere else. As regards biographical information, there will be found under each author's name cross-references to all books in the Library written about him or his works. We believe the Library has also a fair collection of scientific works. A copy can be had by addressing "The Keeper of the Advocates' Library, Edinburgh."

It is with pleasure that we announce the completion of the second edition of "*Die Urwelt der Schweiz*," by Oswald Heer. Herr Schulthess, of Zurich, is the publisher.

In its *Jahresbericht* for 1878 the "Bienenwirtschaftliche Hauptverein im Königreiche Sachsen" publishes the following highly interesting statistical data referring to the indirect utility of bees:—It has ever been one of the objects of all apicultural societies to prove the great importance of bees to agriculture generally. It appears that the Society named possesses 17,000 hives from each of which 10,000 bees fly out daily, which represents a total of 170 millions of bees. If we suppose that each bee undertakes but four journeys per day and that this takes place only on 100 days out of the 365, then we obtain a yearly total of 68,000 millions of bee-journeys. It is not too much to suppose that fifty flowers are visited on each journey, and we are certainly justified in supposing that five out of these fifty are fertilised; then we get a grand total of 340,000 millions of fertilised flowers per year. Let the value of fertilising 5,000 blossoms be but 1 pfennig (or 500,000 for 1*s.*), then the work done by bees of the society represents a value of 68 million pfennige, or 34,000*l.* sterling. It results from these calculations that each hive benefits agriculture to the amount of 2*l.* annually, a value which hitherto has been totally overlooked.

News from Moscow states that a kind of subterranean conflagration is raging upon the islands and the shore of the Kurgaldschin lake in the district of Akmolinsk, province of Atbosarsk. It began in April last, and in the middle of June was still burning with unabated force. The fire spreads in the foot-deep layers of dry reeds, and has penetrated as far as the winter camps of the Kurgaldschin Wolostg, where some 120 Kirghise farms have perished through the flames.

AN international special exhibition of agricultural machinery, &c., will be held at Prague from September 27 to October 5 next.

THE well-known geologist Prof. Credner, has recently proved that in the western part of Saxony glaciers have formerly existed, by the discovery of numerous polished and grooved surfaces of porphyry rocks, now imbedded in the inundation deposits of more recent geological periods. From this discovery

it seems that the Scandinavian ice at some epoch reached as far as the neighbourhood of Leipzig, *i.e.*, to the southern border of the North German plains.

NEAR Wildeshausen (Oldenburg) a so-called window-urn has been found in a prehistoric sepulchral mound. The urn is of elegant shape, perfectly smooth, only ten centimetres in height, and consists of bright gray fine clay. In the body of the urn there are three round holes of about two centimetres in diameter; into these holes green pieces of glass were let in when the clay was still moist. Another piece of glass is in the foot of the urn. Inside the urn stood a vase of the same material and almost the same height. The contents were bones and charcoal. Up to the present, as far as is known, only six window urns have been found; the one described would therefore be the seventh.

MR. MORRIS'S recipe for the cure of the coffee-leaf disease in Ceylon appears to be the application of caustic lime in the proportion of two or three parts to one of flowers of sulphur. He maintains that the disease can only be successfully treated at one of its three stages—the filamentary—when the mixture described will kill the filaments. Mr. Morris is about to publish a handbook on the treatment of this scourge of the island, and by latest advices it appears probable that, at the earnest request of the planters, his departure from Ceylon to Jamaica will be indefinitely postponed.

THE *Echo du Japon* states that the works established at Tsukudu-shima for making carbonate of lime are proving very successful, and will, it is said, send a great quantity of the product to China.

NEAR the village of Eisenkappel (Carinthia), at the border of a forest, several new mineral springs have been discovered about the end of July. They originate in the bed of syenite granite which passes in the direction from Ebriach to Schwarzenbach, and are particularly rich in carbonate of soda, as well as in free and dissolved carbonic acid.

WE notice a very useful Russian pamphlet by M. Lukashevich, on arrangements for heating and ventilation, being a critical description of the various heating and ventilating apparatus exhibited at Cassel in 1877, during the first international exhibition of these apparatus. When we take into consideration how much remains to do in that branch of our knowledge, we cannot but welcome every good work on the subject.

THE *Report and Transactions* of the Cardiff Naturalists' Society for 1878, contains several scientific papers creditable to the members. The Society's Museum has been much improved.

A VOLUME of some interest in connection with progress in Spain has been published by Prof. A. Calderon Arana, "*Movimiento Novisimo de la Filosofia Natural en España*." It is published at the Casa editorial de Medina, Madrid.

THE additions to the Zoological Society's Gardens during the past week include a Guinea Baboon (*Cynocephalus sphinx*) from West Africa, presented by Mr. P. Lembery; a Bush Dog (*Ichtyon venaticus*) from British Guiana, presented by Mr. J. Ernest Tinne; a Ring-necked Parrakeet (*Palaeornis torquatus*) from India, presented by Mrs. Watson; a Common Cuckoo (*Cuculus canorus*), British, presented by Mr. J. Sharpland; a Common Barn Owl (*Strix flammea*), British, presented by Mr. H. Norris; a Chacma Baboon (*Cynocephalus porciarius*) from South Africa, deposited; four Common Spoonbills (*Platalia leucorodia*), European, eighteen Chestnut-breasted Ducks (*Anas castanea*), an Adelaide Parrakeet (*Palaeornis adelaida*) from Australia, purchased; a Cape Buffalo (*Bubalus caffer*), born in the Gardens.